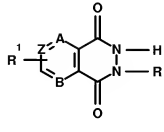
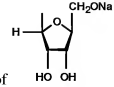
LISTING OF CLAIMS

This listing of claims will replace all prior versions of listings of claims in the application.

1-70. (Cancelled)

71. (Currently Amended) A method for treatment of diseases caused by reversible abnormal changes of pH of nucleus and non-nucleus cells of the living body, ~~therapy of disease caused by intracellular acidosis, oxygen deficiency in cell, excessively formed free radicals, increasing the aggregation of thrombocytes and/or erythrocytes, or harmful action or disorders of nitrergic mechanisms of cell,~~ said method comprising administering to a subject a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of a body, ~~said compound having the ability to normalize hydrogen ion concentration in cells to within physiologically acceptable concentrations, and~~ wherein said biologically-active compound is a cyclic bioisostere of derivatives of a purine system having a general structural formula:





where R is selected from the group consisting of , Li, Na, and K;

R^1 is selected from the group consisting of -H, -NH_2, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH=, and –CR^1=;

Z is selected from the group consisting of -CH=, –CR^1=, and -N=; and

A is selected from the group consisting of -N=, -CH=, and –CR^1=;

wherein when A is -N=, then B is -N= and Z is -CR^1=,

wherein when A is –CR^1=, then B is –CH= and Z is –CH=,

~~or~~ and pharmacologically acceptable salts thereof.

72-81. (Canceled)

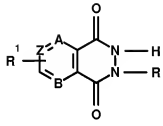
82. (New) The method as claimed in Claim 71, wherein the disease is selected from the group consisting of chronic pneumonia, tissue hypoxia, arterial hypoxia, pleurisy, obstructive bronchitis, anemias, peritonitis, pancreatic, febrile state, and rheumatoid arthritis.

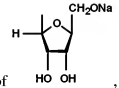
83. (New) The method as claimed in Claim 71, wherein the treatment is fever therapy.

84. (New) The method as claimed in Claim 71, wherein the disease is radiation sickness.

85. (New) The method as claimed in Claim 71, wherein the disease is selected from the group consisting of insulin resistance,. hyperglycemia, hyper fatty academia, and hyperinsulinemia.

86. (New) A method for treatment of diseases caused by oxygen deficiency of nucleus and non-nucleus cells of living body, said method comprising administering to a subject in need of such treatment a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of a body, wherein said biologically-active compound is a cyclic bioisoster of derivatives of a purine system having a general structural formula:



where R is selected from the group consisting of 

, Li, Na, and K,

R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

wherein when A is -N= , then B is -N= and Z is $-CR^1-$, and

wherein when A is $-CR^1=$, then B is -CH= and Z is -CH=,

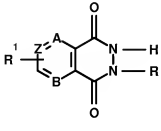
and pharmacologically acceptable salts thereof.

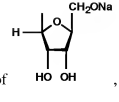
87. (New) The method as claimed in Claim 86, wherein the disease is bronchial asthma.

88. (New) The method as claimed in Claim 86, wherein the disease is ischemic diseases of heart.

89. (New) The method as claimed in Claim 86, wherein the disease is ischemic diseases of human brain.

90. (New) A method for treatment of diseases caused by excessively-formed free radicals in nucleus and non-nucleus cells of a living body, said method comprising administering to a subject in need of such treatment a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of a body, wherein said biologically-active compound is a cyclic bioisoster of derivatives of a purine system having a general structural formula:



where R is selected from the group consisting of 

, Li, Na, and K,

and R^1 is selected from the group consisting of -H, -NH_2, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

wherein when A is -N=, then B is -N= and Z is $-CR^1-$, and

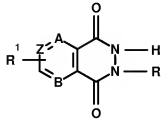
wherein when A is $-CR^1=$, then B is -CH= and Z is -CH=,

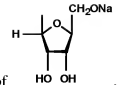
and pharmacologically acceptable salts thereof.

91. (New) The method as claimed in Claim 90, wherein the disease is selected from the group consisting of chronic diffuse glomerulonephritis, sepsis, and cystic fibrosis.

92. (New) The method as claimed in Claim 90, wherein the disease is tuberculosis.

93. (New) A method for treatment of diseases caused by disorders of nitrergic mechanisms of nucleus and non-nucleus cells of a living body, said method comprising administering to a subject in need of such treatment a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of a body, wherein said biologically-active compound is a cyclic bioisoster of derivatives of a purine system having a general structural formula:



where R is selected from the group consisting of 

, Li, Na, and K,

and R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

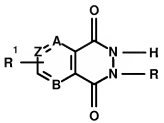
wherein when A is -N=, then B is -N= and Z is $-CR^1-$, and

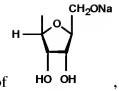
wherein when A is $-CR^1=$, then B is -CH= and Z is -CH=,

and pharmacologically acceptable salts thereof.

94. (New) The method as claimed in claim 93, wherein the disease is selected from the group consisting of neurodegenerative diseases including amyotrophic lateral sclerosis and disseminated sclerosis, thymus involution, and cirrhosis.

95. (New) A method for treatment of diseases caused by harmful action on nucleus and non-nucleus cells of a living body, said method comprising administering to a subject in need of such treatment a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of a body, wherein the biologically-active compound is a cyclic bioisoster of derivatives of a purine system having a general structural formula:





where R is selected from the group consisting of , Li, Na, and K,

and R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

wherein when A is -N= , then B is -N= and Z is $-CR^1-$, and

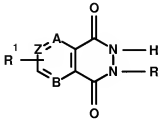
wherein when A is $-CR^1=$; then B is -CH= and Z is -CH=,

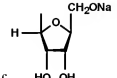
and pharmacologically acceptable salts thereof.

96. (New) The method as claimed in Claim 95, wherein the disease is selected from the group consisting of diseases caused by chemical compounds action, toxic drug action as antibiotics, poisonings, and traumas.

97. (New) A method for treatment of diseases caused by increasing the aggregation of thrombocytes and erythrocytes, said method comprising administering to a subject in need of such treatment a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of body, wherein the

biologically-active compound is a cyclic bioisoster of derivatives of a purine system having a general structural formula:





where R is selected from the group consisting of , Li, Na, and K,

R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

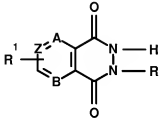
wherein when A is -N=, then B is -N= and Z is $-CR^1-$, and

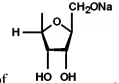
wherein when A is $-CR^1=$; then B is -CH= and Z is -CH=,

and pharmacologically acceptable salts thereof.

98. (New) The method as claimed in Claim 97, wherein the disease is selected from the group consisting of cholelithiasis, inherited hemoglobinopathy, erythrocyte membranepathy, trombophlebiti, thrombosis, thrombocytosis, thrombocytopenia, cerebral blood flow abnormalities, instable angina, myocardial infarction, child's neural disorder, ischemic stroke, and migraine.

99. (New) A method of hepatoprotective action, said method comprising administering to a subject in need of such protection a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of body, wherein this biological active compound is a cyclic bioisoster of derivatives of the purine system having a general structural formula:





where R is selected from the group consisting of , Li, Na, and K,

and R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

wherein when A is -N= , then B is -N= and Z is $-CR^1-$, and

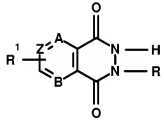
wherein when A is $-CR^1=$; then B is -CH= and Z is -CH=,

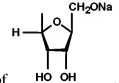
and pharmacologically acceptable salts thereof.

100. (New) The method as claimed in Claim 99, wherein the disease is selected from the group consisting of alcoholic intoxication, drug intoxication, persistent vomiting, hepatitis,

hepatocirrhosis, infiltrative liver injury, hepatocellular carcinoma, cholestasis icluding pregnants, bile-duct obstruction, cholangitis, nutmeg liver, and cardiac cirrhosis.

101. (New) A method of prophylaxis of decreasing the aggregation of thrombocytes and erythrocytes, said method comprising administering to a subject in need of such treatment a pharmaceutically-effective amount of a biologically-active compound having biological activity like as activity of a compound of a purine system of body, wherein the biologically-active compound is a cyclic bioisoster of derivatives of the purine system having a general structural formula:



where R is selected from the group consisting of 

, Li, Na, and K,

R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -Cl, -OH, and -COOH;

B is selected from the group consisting of -N=, -CH= and $-CR^1=$;

Z is selected from the group consisting of $-CR^1=$, -CH= and -N=; and

A is selected from the group consisting of -N=, -CH= and $-CR^1=$;

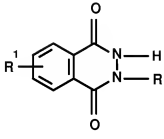
wherein when A is -N= , then B is -N= and Z is $-CR^1-$, and

wherein when A is $-CR^1=$; then B is -CH= and Z is -CH=,

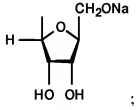
and pharmacologically acceptable salts thereof.

102. (New) The method as claimed in Claim 101, wherein the disease is selected from the group consisting of cerebral blood flow abnormalities, thrombosis, embolism after surgery with vessel, ischemic stroke, and migraine.

103. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99 or 101, wherein the cyclic bioisostere is a derivative of benzo[d]-3H-pyridazine-1,4-dione, having a general formula



where R selected from the group consisting of the atom of Li, Na, K, and



; and

R^1 is selected from the group consisting of -H, -NH_2, -Cl, OH, and -COOH.

104. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the biologically-active compound is selected from the group consisting of:

sodium salt of 2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione ,

sodium salt of 5-amino-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione ,

sodium salt of 6-amino-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione ,

sodium salt of 5-chlorine-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione ,

disodium salt of 5-hydroxy-2-(β-D-ribofuranosile)benzo[d]-3H-pyridazine-1,4-dione ,

lithium salt of 5-amino-benzo[d]-3H-pyridazine-1,4-dione ,

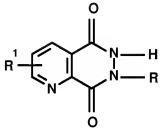
sodium salt of 5-amino-benzo[d]-3H-pyridazine-1,4-dione ,

potassium salt of 6-amino-benzo[d]-3H-pyridazine-1,4-dione ,

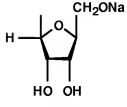
disodium salt of 5-hydroxy-benzo[d]-3H-pyridazine-1,4-dione , and

disodium salt of 6-carboxy-benzo[d]-3H-pyridazine-1,4-dione.

105. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the cyclic bioisostere is a derivative of pyrido[2,3-d]-6H-pyridazine-5,8-dione, having a general formula



where R is selected from the group consisting of the atom of Li, Na, K, and



; and

R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -OH, and -COOH.

106. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the biologically-active compound is selected from the group consisting of:

sodium salt of 7-(β-B-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione,

sodium salt of 4-amino-7-(β-B-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione ,

sodium salt of 3-bromine-7-(β-D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione,

disodium salt of 4-hydroxy-7-(β-D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione ,

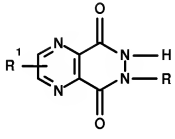
disodium salt of 3-carboxy-7-(β-D-ribofuranosile)pyrido[2,3-d]-6H-pyridazine-5,8-dione ,

lithium salt of pyrido[2,3-d]-6H-pyridazine-5,8-dione,

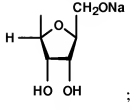
sodium salt of pyrido[2,3-d]-6H-pyridazine-5,8-dione , and

potassium salt of pyrido[2,3-d]-6H-pyridazine-5,8-dione.

107. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the cyclic bioisostere is a derivative of pyrazine[2,3-d]-6H-pyridazine-5,8-dione, having a general formula



where R is selected from the group consisting of the atom of Li, Na, K, and



; and

R^1 is selected from the group consisting of -H, -NH_2, -Br, -OH, and -COOH.

108. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the biologically-active compound is selected from the group consisting of:

sodium salt of 7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

sodium salt of 2-amino-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

sodium salt of 3-amino-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

sodium salt of 3-bromine-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

disodium salt of 2-hydroxy-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

disodium salt of 2-carboxy-7-(β-D-ribofuranosile)pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

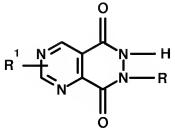
lithium salt of pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

sodium salt of pyrazine[2,3-d]-6H-pyridazine-5,8-dione ,

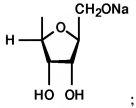
potassium salt of 3-bromine-pyrazine[2,3-d]-6H- pyridazine-5,8-dione , and

sodium salt of 2-amino-pyrazine[2,3-d]-6H-pyridazine-5,8-dione.

109. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the cyclic bioisostere is a derivative of pyrimido[4,5-d]-6H-pyrodazine-5,8-dione, having a general formula



where R is selected from the group consisting of the atom of Li, Na, K, and



; and

R^1 is selected from the group consisting of -H, $-NH_2$, -Br, -OH, and -COOH .

110. (New) The method as claimed in any of Claims 71, 86, 90, 93, 95, 97, 99, or 101, wherein the biologically-active compound is selected from the group consisting of:

sodium salt of 7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione,

sodium salt of 2-amino-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione,

sodium salt of 4-amino-7(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione ,

sodium salt of 2-bromine-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione ,

sodium salt of 4-hydroxy-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione ,

sodium salt of 4-carboxy-7-(β-D-ribofuranosile)pyrimido[4,5-d]-6H-pyridazine-5,8-dione ,

lithium salt of pyrimido[4,5-d]-6H-pyridazine-5,8-dione ,

sodium salt of 2-amino-pyrimido[4,5-d]-6H-pyridazine-5,8-dione , and

potassium salt of 4-bromine-pyrimido[4,5-d]-6H-pyridazine-5,8-dione .